

ABSTRACTS

GEOLOGY

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THE FEATURES OF THE FLOODING OIL AND GAS-CONDENSATE RESERVOIRS IN THE FIELDS OF THE DNIEPER-DONETS DEPRESSION

The probable reasons of stratal water in the hydrocarbon reserves and in the wells are considered in this article. It is established that areas of reservoirs with the hydrophobic character of wettability complicate the process of development of hydrocarbon reservoirs because of their selective flooding. It is shown the mechanism of action of selective flooding. It is proved that the reservoir rocks of gas-condensate reservoirs with a high content of condensate in the formation gas are water-repelling in the process of developing. In the paper is suggested a methodological approach, based on which it is possible to predict the most likely direction of flowing of stratal water for irrigation mechanism of the selective flooding, which will make it possible to adjust the process of development of hydrocarbon reservoirs. To do this, it is important to have specific geological and hydrodynamic models.

Keywords: reservoir, selective flooding, water-repellent reservoir.

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FORECASTING OF NEW OBJECTS WHICH ARE HYDROCARBON TRAPS NEAR THE CHUTOVO-BELUHOV SALT DIAPIR BY USE STRUCTURAL-GEOMORPHOLOGIC RESEARCHES

The search problem of new perspective sites which contain oil and gas in old Oil-and-Gas-Bearing area is discussed in this article. Quantitative indicators of structures which contain hydrocarbon deposits and the procedure of borders definition of the salt diapir with the use of landscape indicators have been described. Ranges of quantitative indicators have been used for forecasting. Results of forecasting near the diapir perspective blocks which are possible hydrocarbon traps with the use of landscape-geoindeication and morphometric methods of structural-geomorphologic researches are submitted in this article. New perspective places of probable presence of hydrocarbons traps are predicted near the Chutovo-Beluhov salt diapir in the central part of Dnieper Donets Depression of Ukraine.

Keywords: landscape-geoindeicative interpretation, morfostructure, morphometric methods, salt diapir (salt-dome structure), structural-geomorphologic researches.

UDC 555.491.5(571.121)

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COMPARATIVE CHARACTERISTICS OF THE CHEMICAL COMPOSITION OF GROUNDWATER SHIRAZ AND HORRAMAB INTERMONTANE BASINS OF IRAN

Determining the similarity of the chemical composition of groundwater wells and many sources on a large number of chemical elements and compounds (10 and over) is a very difficult task. We have proposed a

new method of determining the similarity of chemical compositions of groundwater. The method is based on the use of cluster analysis. Applying this analysis allows us to find underground water with similar chemical compositions in different areas and aquifers, predict possible contamination and avoid exhaustion. The method was tested by comparing the chemical composition of the groundwater Horramabad and Shiraz intermontane basins of Iran. It has been found that these groundwater intermontane depressions have similar chemical composition.

Keywords: Iran, Shiraz and Horramabad intermontane basins, groundwater, chemical composition, cluster analysis, similarity.

UDC 553.411:469

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COMPOSITION AND PARAGENESES EVALUATION OF PICOILMENITES FOUND IN SEDIMENTARY COMPLEXES FOR FORECASTING THEIR PRIMARY SOURCES

Heavy concentrate and mineralogical analysis of the composition and typomorphic peculiarities of picroilmenites and their parageneses found in the sedimentary complexes of the Olenyok region of western Yakutia has been carried out for forecasting their primary sources. The form, survival rate and quantity of picroilmenite grains have been studied in the stream sediment sample. Their chemical composition has been determined and diagrams of TiO_2 -MgO and Cr_2O_3 -MgO content have been made. Within the boundaries of the region the halo of dispersion of kimberlite indicator mineral (KIM) in the modern sediments is characterized by the highest survival rate in comparison with the neighboring territories that along with their superior size distribution and hurricane contents, clearly indicates the immediate vicinity of primary sources. Ulakhan-Yurege field, that has been forecast includes the basins of the Ulakhan-Yurege, Ulakhan-Talahtah and Tustakh rivers and is characterized by local KIM halo with a high survival rate w in Lower Cretaceous and modern sediments (picroilmenite grain of class I and II up to 40%).

Keywords: mineralogical criteria, composition and parageneses of picroilmenites, kimberlite indicator minerals (KIM), primary sources.

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STRUCTURALLY-TECTONIC FEATURES OF SOUTH-EAST SEGMENT OF DNIEPTR-DONETS RIFT (FROM POSITION OF STRIKE-SLIPING OF TECTONICS)

The geological phenomenon, related to the salt-strike-slip structures (SSSS), goes beyond the scopes of traditional ideas about the structurally-tectonic structure of anticlinal swells in anticlinal areas. In connection with a reliable selection seismicity 3D horizontal strike-slip faults, there is a necessity for the new tectonic districting of south-east segment of Dniepr-Donets graben (DDg) from position of salt-strike-sliping tectonics. On the example of Kochybiivsk-Oliksiivsk and Elizavetivsk-Bilyaevsk of areas of anticlinal structural high, in the light of new ideas about genesis and terms of forming of structures of horizontal strike-slip faults, the general features of structural structures of salt-strike-slip swells and structures, timed to areas of horizontal compression [1 are shown, 2]. Depending on structural position in the area of strike-slip, the structures of V of order are divided into maternal brahianticline, maternal stocking of blocks, handing of gorst-anticline and self-strike-slip structures. In this case basic structures-forming factors in forming of structures of V of order served as local strike-slip of IV of order.

Keywords: break a secret, raising, strike-slip faults, salt-strike-slip area (SSSA), salt-strike-slip structures (SSSS).

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GEOLOGIC FACTORS OF NON-ANTICLINE TRAPS FORMING IN DNIEPER-DONETS AULACOGEN SPECIAL OIL AND GAS ACCUMULATION ZONES

In DDD and Donbass northern boundary numerous non-anticline traps of different types have been discovered, their territorial spread characterized by significant diversity. In some zones definite trap types prevailing in one or another stratigraphic complexes can be distinguished, others have their interrelation balanced. It looks like possible and expedient to differentiate the Region territory with marking out of oil and gas accumulation zones (OGAZ), considered as search megaobjects. Zones where proper traps not discovered yet, but where are exist traps forming auspicious conditions, attributed to potential OGAZ. 17 real and 5 potential OGAZ have been defined.

Keywords: trap, structure, zone, prognosis, search, oil and gas accumulation.

UDC 551.7

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INTRUSION AND SALT DIAPIRS AS HEAT AND MASSES TRANSPORTATION CHANNELS

Salt diapirs are precondition for oil and gas fields search in near-stock territories. One of the possible way of diapir genesis examined. It gives basis to regard salt diapirs as longliving channels of hydrocarbons and ore-containing fluids transportation into deposit rocks of upper structural floors. Examples of Permian magmatic intrusion in near-stock zones are given. The facts confirmed by diabases hot contacts. Such phenomena observed not only in Dnieper-Donets Depression, but also in another World regions. Diapir structures as one of the main fluid migration way help not only to old fields hydrocarbon supply restoring (on example of Shebelinka field), but also new ones origination.

Keywords: magmatism, deep fracture, exhalation, hydrotherm, metasomatism, salt diapir, fluid, deposit.

UDC 553.98:556.3(477.6)

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ZONAL FEATURES OF OIL AND GAS DEPOSITS IN DNIEPER-DONETS BASIN

Zonal peculiarities of distribution of oil and gas deposits in Dnieper-Donetsk basin are considered. Main and depth zones of hydrocarbons accumulation are picked out and their basic differences are grounded. Oil and gas deposits characteristic is given in the limits of south-east part of Dnieper-Donetsk basin. Main differences of the oil and gas accumulation in the central axis zone and limited zones are considered; Basic characteristic of deposits in the south-east part of DDb is shown. Contemporary connection between location of hydrocarbons deposits and tectonic thermal activation is shown on the neotectonical phase of the pool development. Some corrections in direction and methodology of regional exploring and seismic researches of oil and gas are suggested.

Keywords: oil and gas accumulation, depth zone, heat and mass transfer.

UDC 552.57

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METAMORFIC ROCKS CLASTIC MATERIALS OF COAL LAYERS DONETS BASIN

This article is a continuation of research on the boulders and pebbles of coal seams Donets Basin. The article is devoted to the explanation of their mineral and petrographic composition. This paper describes the clastic rocks of the Donets Basin coal seams, which are metamorphic in composition. The object of the study were thin sections of rocks which have been examined under a polarizing microscope. As a result, the following metamorphic rocks: garnet-sericite-quartz schist, shale antimonite, granite-sericite, muscovite-biotite gneisses, muscovite gneiss and quartzite huge amount (80%). In the quartzite rock-forming mineraloami is basically quartz, as an exception - feldspar: plagioclase and potassium feldspars. Accessory minerals: garnet, Tsircon, magnetite. Secondary minerals muscovite sericite, calcium, pyrites.

Keywords: metamorphic rock, schist, quartzite, gneiss, Donets Basin, coal layers.

UDC 550.341

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PERSPECTIVES OF HYDROCARBON SOURCE MATERIALS GROWING IN TRANSCARPATHIAN GAS-BEARING REGION (ON ZALUZHSKA SUBREGIONAL UPLIFTING AS AN EXAMPLE)

A complex of geological-geophysical data is analyzed, the most perspective rock complexes are outlined and further works are offered within Zaluz'ke subregional uplifting. A lack of hydrocarbons in our country should be solved by scientific research in order to grow source of hydrocarbon materials and domestic production increase. One of the areas with uncertain results where additional research should be done is Zaluzhska subregional uplifting. The first data about oil and gas bearing of the territory was obtained in 1841, when an inflow of gas was received from salt well at 89 meters depth near the village Dorobratovo. After the WWII, when territory of the Transcarpathian depression was included into USSR, it was covered by gravity, electric and magnetic and seismic survey. According to geologic survey Zaluzhska structure was outlined. In bunch of wells gas, water-gas and oil shows were recorded. Natural gas of the area probably appeared because of abnormally high warmth flow. It is recommended to drill horizontal directed wells in the thickness of dorobrativska suite.

Keywords: Transcarpathian depression, trap, structure, geological-geophysical data.

UDC 551.14:550.42:552.3

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ON THE PROBLEM OF GEOCHEMICAL AND METALLOGENIC PROVINCE FORMATION

The comparison of the chemism, mineralogy, rare element composition of the Earth's crust, magmatism and upper mantle in Tien Shan and the Baikal-Mongolian regions within the western and eastern sectors of the Paleozoic Central Asian mobile belt, enables us to assign them to different geochemical provinces. Mantle metasomatic rocks and alkaline basites of Pamir-Tien Shan province and / or its individual units are characterized by abnormally high concentrations of lithophile and chalcophile elements (Cs, Li, B, F, Sr, Sn, Hg, Sb, Ag, Pb, Zn, etc.), which is consistent with the presence of large and unique deposits of these elements. Mantle deposits play an important role in the overall balance of reserves of ore and rare elements of the Pamir-Tien Shan and other areas, and this factor should be considered when conducting metallogenic forecasting and prospecting works. Possible reasons for the formation of geochemical and metallogenic provinces are caused by several factors, and the most important among them are recurrent and compositionally similar mantle thermochemical plumes.

Keywords: geochemical and metallogenic provinces, the upper mantle, rare and ore elements, mantle plumes, ore deposits.

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THE SUPPLEMENTARY (ADDITIONAL) EXPLORATIONS PROSPECTS FOR THE UPPER VISÉAN GAS-CONDENSATE POOLS OF KOTELEVSKE FIELD

The exploration works are focused on hydrocarbon unproved reserves. There are large part of the multi-layer gas-condensate fields in Ukraine, that have numerous small pools in section. Exploration drilling into isolated pools with minor unproved gas reserves is unprofitable. The way out from this situation may be an appraisal-development drilling. Using Kotelevske GCF as an example is shown how the areas for appraisal and development drilling in the commercial reserves of hydrocarbons with the possibility of additional exploration of pools with unproved reserves and further transfer of these reserves in the commercial category have been identified by taking into account the geological and geophysical data, evaluation of properties of reservoir rocks and analysis of field development.

Keywords: reserves, additional exploration, pool, appraisal-development well.

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CHANGING THE PROPERTIES OF DISPERSE SOIL IN THE ZONE OF INFLUENCE «EURAS – PETROVSKY DNIPROPETROVSK METAL FACTORY»

The purpose of the study is the analysis of changes in soil by technical influences. It were study the changes of properties and the state of fine-grained soil in the zone of influence of the oldest companies in the steel industry of the industrial region near Dnieper. The peculiarities of changes in the properties of disperse rock (soil) on the analysis of many years of research materials (institute "Ukrqiprommez). Methods of research are statistical analysis of the data, including the descriptive statistical analysis, rank correlation and multiple linear regression analysis. According to the results of statistical analysis established trend of increasing uniformity of deposition. Growth sand content is due to the collapse of large particles and removal of fines. Such changes may be the result of processes of dispersion process-related destruction of micro aggregates. Plasticity changes (moisture on the plastic limit), and the angle of repose of the sand deposits (1993-2003).

Keywords: time series, statistical analysis, properties of soil.

UDC 556.38.382

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OPERATING CHARACTERISTICS OF GROUNDWATER RESOURCES AGARMYSH AREA AND IT RATIONAL USE

The paper considers the problem of shortage of potable groundwater in the Eastern Crimea. Analyzed hydrogeological features, geological structure and conditions of the groundwater array Agarmysh, and appropriateness of their use in the region. A rational solution deficit potable groundwater in the Eastern Crimea. Three areas of the most promising in terms of groundwater quality and profitability of their production to accommodate intake of drinking groundwater. Analyzes appropriate place their placement, chemical, bacteriological composition of waters and the conditions of their power within these areas. Courtesy of hydrogeological parameters of aquifers. The general operating groundwater resources of the array. Analyzes that full and rational use of groundwater array Agarmysh will allow partial solution to the problem of drinking water in the region in the summer, and completely solve the problem in the autumn and spring.

Keywords: sources of drinking water, maintenance of groundwater resources, the array Agarmysh.

UDC 551.7

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SHEBELYNKA FIELD TRIASSIC DEPOSITS PRODUCTIVITY SOME FEATURES

Triassic sandstone collectors of Korenivka and Serebrjanka subsuites on Shebelynka field inclose primary gas pools of commercial character that lay over the main Paleozoic massive-formational deposit. This fact proved by direct gas-productivity signs, obtained during the drilling of the first deep borehole on the field - № 1 – Shebelynka. It can be used as a important analogy during the hydrocarbon search in Dnieper-Donets depression Mezozoic prospect complex as an example of productivity existing above regional Permian salt impermeable seam. Also there are some serious base for prognosis of oil fringe or oil pools in Shebelynka rock what beds upper and lower than massive-formational pool section.

Keywords: system, suite, horizont, sandstone, deposit, oil, gas.

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PROSPECTS FOR IDENTIFYING MISSING ITEMS ON LONG-DEVELOPED HYDROCARBON DEPOSITS

A comprehensive analysis of geological and physical, geological and field materials, core analysis in the light of the development of the "old" fields reveals previously missing "low-resistance" formations that at the stage of exploration and resource estimation interpreted as water-saturated or sealed, and when testing gave anhydrous inflows of hydrocarbons. The methodical approach to forecasting and identification of missing "low-resistance" hydrocarbon saturation layers, comprising complexing structural, lithological cards, specific electric resistance layers with well test results, which makes it possible to establish the nature of the spread of "low-resistance" in the deposit collectors, predict their development in the context of deposit to hold the primary materials reinterpretation of well logging and identify objects previously missed. Further exploration and development of such facilities hydrocarbon reserves would increase the existing levels of oil and gas resource base.

Keywords: plastic, horizon, electrical resistivity, low-resistance, stocks up exploration, well.

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PROBLEMS OF UNDERGROUND HYDROSPHERE POLLUTION IN INDUSTRIAL REGIONS (ON EXAMPLE OF DONBAS)

Problems of underground hydrosphere pollution in industrial regions have been considered. The causes, types and sources of anthropogenic contamination of groundwater have been revealed on the example of Donbas. Basic processes of local and regional hydrogeochemical anomalies formation in technogenesis have been shown and stressed that each industrial region has its own specific pollution of the hydrosphere. Key factors of underground hydrosphere natural protection have been determined. Characterized Pathogenic effect of some elements - pollutants and their associations in the groundwater on the human body has been characterized.

Keywords: underground hydrosphere, anthropological pollution, groundwater, chemical elements.

UDC 553.98+477.53

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**THE REGULARITIES OF CONVENTIONAL AND UNCONVENTIONAL GAS ACCUMULATION
IN THE ASPECT OF HYDROGEOLOGICAL AND CATAGENETICAL ZONALITY
(AFTER THE EXAMPLE OF DNEIPER-DONETS TROUGH)**

The conditions of conventional and unconventional gas accumulation in different hydrogeological and catagenetic zones has been examined. The distribution of deep zone of combined unconventional gas accumulation in thermodehydrational hydrogeological zone has been shown. This zone is formed by overlying shales, sandstones, limestones and coals which stratigraphic age varies from Low Carbon to the top of Middle Carbon. The rocks are transformed in gradation MK₃ of mezocatagenesis and form an extensive tight reservoir. The depth of its bedding increases from 2,5-3,0 km on South-East to 5,0-5,5 km on North-West. The thickness of this zone varies from 300-400 to 800-900m. This complex represents “catagenetical fluidproof” that controls the zone of abnormal high pressures and in the same time it serves as practically waterless tight reservoir which contains combined unconventional gas resources. The objects for assimilation of combined unconventional gas at Dnieper-Donets Trough have been proposed.

Keywords: unconventional gas, hydrogeological zonality, catagenesis, Dnieper- Donets Trough.

GEOGRAPHY

UDC 911.3

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TERRITORIAL DISTRIBUTION OF TOURIST AND RECREATIONAL RESOURCES IN KHERSON REGION (BASED ON CLUSTER ANALYSIS)

Kherson region has significant tourist and recreational resources as natural and geographical as social and geographical. At the same time tourist and recreational resources are distributed irregularly within the region that provide differentiation of the development of the tourist and recreational activity within cities and districts. The main methodical positions of the cluster analysis execution is given in the article, its application for identification of the territorial distribution differentiation of the tourist and recreational resources have been justified. Cluster analysis has been conducted for the analysis of the territorial distribution of the tourist and recreational resources. Received clusters are a group of territorial units that have similar features of the development. Conducting of the clustering allows tracing the formation of the districts groups and their rearrangement in time that allows indicating the most stable trends and constant groups of districts. Grouping by data of 5-year period has been conducted, features of grouping of the region's territorial units. The territory of the region can be divided into clusters with the high level of the providing of the tourist and recreational resources and districts where they are provided few. Kherson region is divided separately. The separate group is seaside districts (Golopristsansky, Sadovsky Henichesk, Kalanchak) and the city of Nova Kachovka. Belozersky and Kahovskij districts are highlighted also. Features of the territorial distribution of the tourist and recreational resources Kherson region based on conducted cluster analysis have been analyzed.

Keywords: tourist and recreational resources, territorial features, cluster analysis.

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THE FEATURES OF THE SPATIOTEMPORAL DISTRIBUTION OF ANOMALIES OF TEMPERATURE AND HUMIDITY OF AIR IN THE NORTHERN POLAR REGION

Studies are spatial and temporal distribution of temperature and humidity anomalies characteristics in the northern polar region, calculated according to the Internet resource ERA-40. Analysis visualized field anomalies of temperature and humidity characteristics revealed the dependence of formation characteristics of the meridional circulation of air temperature contrasts, depending on the position of the field borders of sea ice. Over the studied period of two years revealed the formation of an enduring thermal trough in the New Siberian Islands, which are connected with circulation features in the study area, and the peculiarities of the underlying surface. Formation zone of negative anomalies relative humidity over Greenland with a seven-year intervals due to the nature of the underlying surface and the changes in the circulation of the North Atlantic Oscillation. Found that in the New Siberian Islands area of positive anomalies observed relative humidity in the field of thermal ridge. Formation zone of elevated temperatures in this region leads to an increase in moisture content in the air, which intensifies the process of cloud formation and growth records of relative humidity. The analysis of seasonal changes in the fields of air temperature north polar region showed that the ridge heat in Siberian Islands is observed only in the warm season, so the increase in air temperature in summer on 4,0°C makes significant gains instant mixing ratios.

Keywords: air temperature, mixture ratio, relative humidity, anomaly, northern polar area.

UDC 911.3

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APPROACHES TO THE DEFINITION OF THE TERM "SOCIAL INFRASTRUCTURE"

The article deals with approaches to the definition of the term "social infrastructure". The concept of "infrastructure", prerequisites of the term "social infrastructure" formation have been examined. The definitions of "social infrastructure" by scientists in the fields of regional economy, location of the productive forces, human geography have been analyzed. On this basis four approaches to understanding of this concept were worked out, based on the functional purpose and material presenting of the social infrastructure. The first approach is based on the function of the conditions creating to employed population in manufacturing, the second – to ensure normal living conditions for the population, the third approach is based on the function of meeting needs for people and their normal residence, the forth – on meeting people's needs in services . It was revealed that the social infrastructure is materially presented in the form of the material base, the set of enterprises, buildings, organizations, sectors and activities. The concepts of "territorial and sectoral system of the social infrastructure" by Y.M. Kazakov, B.S. Movchan and "territorial system of the social infrastructure" by LA Merkusheva have been examined. The author understanding of the concept of "social infrastructure" in terms of system approach has been proposed.

Keywords: infrastructure, social infrastructure, the geography of the service sector, material resources, businesses, industries, people's needs, services.

UDC 911.3

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SOCIAL AND GEOGRAPHICAL FEATURES OF THE FORMATION OF THE INVESTMENT ATTRACTIVENESS OF KHARKIV REGION

The article is devoted to revealing the social and geographical features of the formation of the investment attractiveness of Kharkiv region. The evaluation methods of investment attractiveness of the districts based on the analysis of demographic and socio-economic indicators of the region have been proposed. Original indicators are standardized using the index method. The integral indicator of the formation of investment attractiveness in the districts has been calculated. The ranking of the districts in Kharkiv region on the value of the integral indicator was conducted. The results of the research indicate the significant differentiation between districts in terms of the investment attractiveness. The most attractive for investors is Kharkiv district. High investment attractiveness is typical for northern and northwestern districts of Kharkiv region. Most of the districts have a medium investment attractiveness, they are mainly located in the center of the region. The group with low investment attractiveness are the districts of the southern and southwestern districts of the region. The main factors of investment attractiveness of the districts in Kharkiv region are their cross-border location, entrepreneurship development and cross-border cooperation.

Keywords: investment attractiveness, social and geographical features, index method, Kharkiv region.

UDC 551.58

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VARIATIONS OF THUNDER-STORM ACTIVITY ON THE TERRITORY OF UKRAINE IN THE 20TH AND IN THE BEGINNING OF THE XXIST CENTURIE

Research of the spatial-temporal distribution and repeatability of thunder-storms on the territory of Ukraine for the periods of 1936-1965 and 1973-2012 are presented. Spatial distribution of storm activity to the territories of Ukraine depends on orographical heterogeneity and air temperature conditions which pro-

mote the formation of powerful ascending air movements and cold fronts aggravation. The analysis of an average number of days with thunder-storms across Ukraine has revealed a maximum in the area of the Carpathians and has shown that an intensive storm activity depends on the orientation of mountain ridges in relation to the prevailing streams, height of slopes and their security. A significant reduction of number of days with thunder-storms in the second period is revealed. The general dynamics of variations of the storm activity for the period of 1970-2012 shows a gradual steady increase of number of days with thunder-storms.

Keywords: repeatability of thunder-storms, statistical characteristics, orography.

UDC 911.3

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FEATURES OF TRANSPORT AND COMMUNICATIONS INFRASTRUCTURE IN RURAL AREA OF DONETSK REGION

This article analyzes the characteristics of transport and communication infrastructure in rural area of Donetsk region. Social infrastructure components and its key components in the rural area have been shown. The place of the transport and communication components in the social infrastructure have been given. Temporal and spatial features of the transport complex functioning by types were considered. Railway transport in rural areas is developed near large and medium cities due to the development of industry in the region. The vast proportion of the rural population uses the auto road (motor transport). Dynamics of carriage of passengers by road has increased significantly over the last 5 years. In rural areas, accessibility is not uniform, it all depends on the remoteness of cities, highways and railway junctions. The features of transport access for rural areas of Donetsk region were shown. The features of communication in rural areas were given. The means type of communication in the rural areas of Donetsk region include telephone, intercom, telegraph, fax, telex, modem, speaker spotlight at sea, radio, mobile phone and Internet. The level of functioning transport and communications infrastructure, especially in rural areas, is an important indicator of social development. The features, factors, problems of transport and communication infrastructure of the Donetsk region was investigated, which allows us to offer ways to optimize for the social needs of the rural population.

Keywords: rural area, social infrastructure, transport and communications infrastructure.

UDC 631.15: 332.3

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SOCIAL AND ECONOMIC VALUE RENTAL AGREEMENTS IN THE AGRICULTURAL LAND IN UKRAINE

The paper describes the features of the lease of land relations in agriculture. Identified strengths, weaknesses, reasons and factors, which occurs because of the influence its development. Reasonable prospects of their improvement through the implementation of best rent for the use of land shares. The features of the existing standard - the legal framework to establish ownership of agricultural land in Ukraine. The ways of optimizing the conditions of the lease transactions. The basic disorders specific to land - lease and ways to improve the protection of rights of landowners. Grounded methodological approaches to implement the mechanism of collateral rights to lease land and the need for a legislative solution.

Keywords: portion of land, lease of land, rents, government regulation.

UDC 911.3

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MODELING OF DEVELOPMENTAL TRAJECTORY OF EDUCATION SYSTEM IN LUGANSK REGION

The paper presents the results of research of the education system in Lugansk region. On the basis of modeling techniques of developmental trajectory of sociogeosystem in a multidimensional space identified the normalized spatio-temporal features of the education system in the region. For analyze was generated the information database, which includes around 100 parameters for the period from 2007 to 2011 and covers the data about demographic situation in the region, development indicators of early childhood education, general secondary education, extracurricular education, vocational technical and higher education in the cities and districts of Lugansk region. The consistency of developmental trajectories of education systems in districts with optimal trajectory based on the analysis of cosines of angles formed between them is analyzed. The significant deviations between the trajectories and the opposite direction of motion relative to optimal education systems in the districts of Lugansk region was defined. The results of calculations of distance parameters from the current point trajectory to the origin and meaning of the distance to the point of maximum development that demonstrate the effectiveness of education systems in the districts are presented. The most effective development of the education system is in Svatovsky, Starobelsky, Lutuginsky, Popasnyansky, Stanichno-Lugansky districts. It is established that in Lugansk region are observed the regional differences in the intensity of educational systems. A grouping of districts by value criterion of progress in the development, with emphasis on districts with positive and unstable dynamics of educational systems was made.

Keywords: education system, developmental trajectory, linear motion characteristics, social and geographical modeling.

UDC 911.3

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SOCIAL AND GEOGRAPHICAL FEATURES OF HEALTH CARE SYSTEM IN VOLYN REGION

The health of the population is an indicator of the socio-economic development, an integral part of the level and the quality of life in the country. The current economic situation in Ukraine and its regions is characterized by the dramatic changes in all spheres including health care. The health of the nation depends on the effectiveness of this situation. The health care is a system of government and public health and socio-economic measures aimed at preventing and treating disease, improving living and working conditions of the population, preserving and improving the health of society and each of its members. Volyn region is one of the most stable as to demographic development. In the region is observed a natural increase of population, the intensity of which in 2012 was 0,8 ‰. The birth rate was 14.1‰ and the mortality rate was 13.3‰. It should also be noted the decline of morbidity. System of health care institutions in Volyn region serves 16 districts and includes 50 hospitals and 930 outpatient clinics where employing 24,600 people. The budget for healthcare in 2012 was 715 thousand hrn. The current model of health care is based on the principles introduced during the Soviet times and has a number of shortcomings. As follows, there is a need for changes in the system of health care in Volyn region. The main priority areas of reform should be the development of primary health care on the principles of family medicine, the structural reorganization of the health care system, the transition to the contractual terms of health care, the development of health insurance, the implementation of efficient pharmaceutical policy.

Keywords: health care system, medical-demographic situation, the structure of morbidity and mortality, system of institutions, staffing.

UDC 911.3

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FEATURES IMPORT-EXPORT SERVICES IN THE KHARKIV REGION

The article discusses the features of foreign trade in services in the Kharkiv region. This general trend of exports, imports, balance and turnover of trade in services are given. The geographical structure of trade in services in the Kharkiv region is analyzed. The structure of exports and imports by type of service is considered. The place of trade in services in the foreign activities of Kharkiv region is shown, its features are given. The structure of services exports of the Kharkiv region by sector accounted for the largest share-related services to various business, professional and technical services, computer services, insurance services, travel, repairs, etc. This is due to the development of industry, social, scientific and technological progress. In imports accounted for the largest share services related to financing activities. The major export partners of the Kharkiv region are the CIS, Europe and Asia. This is due to the fact that in the Kharkiv region has long been historically coordinated partnerships with these countries. The biggest import partners of the Kharkiv region are mainly European countries. This is due to the fact that Europe, in general, is the largest supplier of services in the world. Also, this pattern is due to friendly ties between Ukraine and European countries, favorable economic and geographical location.

Keywords: foreign trade of services, service export, service import, turnover and balance of foreign trade of services.

UDC 551.588.1

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INFLUENCE OF SCANDINAVIA PATTERN ON TEMPERATURE ANOMALIES OVER EASTERN EUROPE

Presents the analysis of influence Scandinavian pattern on surface air temperature anomalies over Eastern Europe and the Black Sea region using reanalysis data of the NCEP / NCAR and the method of "composites". It is shown that the oscillation positive phase is accompanied by a significant cooling in the Volgograd and Rostov regions of Russia, as well as to the east and north of the Ukraine in January and February. Cause of these anomalies is essential in shaping the sustainable transport of arctic air masses from the north-east with a positive phase of the oscillation, when surface anticyclone over Scandinavia is most developed.

Keywords: Scandinavian pattern, temperature anomalies, the method of "composites".

UDC 551.576.2

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ANALYSIS OF THE MODE OF CLOUDS IN ANTARCTICA

The general overcast of Antarctica, overcast of the bottom circle and the attitude of average quantity of clouds of the bottom circle to total of clouds is considered. The found out existential distribution of the general overcast and overcast of the bottom circle. The minimum value of cloud characterized Antarctic Plateau, and maximum – Antarctic Peninsula. The largest number of clouds typical of the station Bellingshausen, which is on track moving cyclones East Pacific and South American branches. Investigation of the spatial distribution of the ratio of the average number of clouds lower tier of the total number of clouds revealed that its seasonal variability is very weak: the maximum value characteristic of the Antarctic Peninsula, which features maritime climate, characterized by minimal area of the Antarctic Plateau and East Antarctica. The results obtained on the dynamics of rainfall and the spatial-temporal distribution of clouds are required for the monitoring of modern climate changes that occur in the Southern Hemisphere.

Keywords: the general overcast, overcast of the bottom circle, Antarctica.

UDC 911.3

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INTRAREGIONAL FEATURES OF DEMOGRAPHIC CAPITAL FORMATION OF THE KHARKIV REGION

The essence of the human capital was defined. The structure of human capital by blocks (the population reproduction, the labor reproduction, health and migration) was shown. Indicators of direct and feedback activity on the human capital formation were identified. The method of ranking and grouping for comparison of cities and districts for the features formation of the human capital was chosen. Preliminary indicators were normalized (normalized indexes are changed in the range from 0 to 1). The rating of the administrative and territorial units was determined by the value of each index was preliminary determined. Statistical data of the demographic capital formation on cities and districts of the Kharkiv region were processed. For the sum of ratings across the 19 selected indicators graph was constructed. Grouping of cities and districts of the Kharkiv region based on the schedule was completed. The grouping of cities and districts of the region was achieved. Based on the calculation results, the first group was composed of 11 administrative districts; the second group was represented by 9 units; the third group was represented by the countryside regions; the fourth group was formed regions with negative demographic trends. The internal regional demographic characteristics of the demographic capital formation of the Kharkiv region were analyzed. In summary, we should conclude that the features of the formation of human capital largely correspond to demographic trends.

Keywords: human capital, demographic capital structure of the population, stimulants and disincentives demographic capital formation.

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THE FEATURES OF ECONOMIC POTENTIAL OF KHARKIV REGION AND ITS COMPONENTS

Economic potential - a combination of existing and readily available for mobilization major sources of the country (region), elements of potential of integrated economic system that are used and can be used for economic growth and socio-economic progress. In terms of provision and overall economic potential the regions of Ukraine are very different from each other. Kharkiv region has a high level of economic development. The total economic potential of Kharkiv region can be estimated at 24444 million (as of 2011). In the new conditions of economic modernization, social and cultural life, Kharkiv region seeks to preserve its unique potential to gain a new quality of regional identity based on historical traditions and global trends in the world. Despite the distance from the center of the country to Kharkiv region, favorable climate conditions, rich natural resources and favorable geographical location at the crossroads of Eastern Europe provides the benefits for international trade. The region focused a large part of the economic potential of the country. Companies of almost all industries are operating in the Kharkiv region, including leading in Ukraine engineering, instrument-making, fuel and electrical energy, agriculture and manufacturing. Well developed infrastructure enhances the economic potential of the region. Thus, all this determines the relevance of further socio-economic research in Kharkiv region.

Keywords: economic potential, Kharkiv region, natural resources, workforce, investment component, innovative component.

UDC 911.3

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FEATURES TRANSPORT COMPLEX BIG CITY

Geographers investigate the transport sector in the region, the countries of the world economy, the main directions of movement of passengers and cargo, study some transport companies composed of cities and regions, analyzing the features configuration of transport networks in different natural and economic condi-

tions determine the general laws of development of transport communications and systems. The study of transport networks as integral system units that have their own laws of development and infrastructure is an important basis for the formation of economic systems of various types and scales is very important and urgent. No exception is a study of urban transport in Kharkov. Considering the system of the transport system of the city of Kharkov identified factors that influence its deployment and operation and function of public transport. The basis for the operation of public passenger transport is the regulations that are defined in this article. The main problems in the functioning of the transport complex in Kharkiv requiring further socio-geographical research.

Keywords: transport complex, urban transport, road-transport complex, urban public transport route.

UDC 911.3

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TOTAL DYNAMIC OF REGIONAL GEODEMOGRAPHIC PROCESSES IN UKRAINE

An important methodological principle of GDP study is a direct connection of GDP concept with regional economy and regional policy. Regional policy is marked in Ukraine in 2001 by the Decree of the President of Ukraine, requires formal regionalization of the country as a mandatory condition of Ukraine's accession to the EU. Currently, the main documents regulating the regional development of the country is "Concept of regional policy" (2001) and "Strategy of socio-economic development of Ukraine and its regions through 2015". This paper discusses features of the regional population dynamics, presents diagrams of size population of regions in the period 1897-2011 and qualitative assessment of change of population size in regional geodemographic processes between census intervals. Diagrams indicate large differences in population fluctuations in regions from 900000 to 5.5 million persons, as well as significant regional contrasts by terms and amplitude of population growth. A common feature of regional GDP graphs is their entry into the stage of depopulation in 1989-1991 years. Regions are grouped in six groups by the amplitude and rate of population dynamics. Qualitative assessment of population dynamics in regional GDP between census intervals gives an idea about the general features of population movement in the regions, leads to the idea of typological representation of the dynamics of GDP. The following taxonomy of regions by the general features of the dynamics of demographic development in conjunction with other indicators will be used as one of the typological criteria for the systematic improvement of regional GDP. Exploring regional GDP is a multifaceted and complex process and beyond one unambiguous definition, can be characterized from different angles and perspectives. Comprehensive study of GDP and its development involves the collection, arrangement, compilation and analysis of large amounts of diverse information using different methods. This allows to make an objective assessment of GDP in the context of social and economic development of country.

Keywords: geodemographic process, dynamic of population size, regional differences, regional demographic policy.

ECOLOGY

UDC 57.042

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TO THE QUESTION OF THE IMPACT OF COSMOGENIC FACTORS ON GEODYNAMIC PROCESSES, AND INCORPORATING THEM INTO THE DESIGN AND OPERATION OF HAZARDOUS OBJECTS

The article is devoted to the influence and character of the manifestation of cosmogenic factors on the territory of Ukraine. Detail the direction of change of seismic activity as a factor of danger. Specifies necessity of creation of modern devices an instruments for assessment and registration of modern cosmogenic factors, which would supervise and timely detect the development of negative processes at all sites, representing a danger to the environment and living of the population (hydraulic dams, nuclear power plants, storage of toxic waste, mines and so on). It is proved that control the development of geodynamic processes must be carried out in two directions: control of spatial development of geodynamic zones method NIEFE (natural impulses of an electromagnetic field of the Earth) and controlling the development of geodynamic zones in time (monitoring). It is necessary to create special stationary geodynamic paragraphs observations, equipped complex of special sensors recording.

Keywords: cosmogenic factors, the impact, geodynamic processes, high-risk facilities, industrial and civil engineering works, construction norms, operational reliability, protection measures.

UDC 624.136:627.824

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ACTIVITIES ENVIRONMENTAL OPERATING STORAGE INDUSTRIAL WASTE

Presently in Ukraine obtained near a 5% world volume of sources of raw materials. Development of minerals and their processing about 3,5 thousand industrial enterprises engage in. The common amount of hard wastes of these enterprises makes 1,3-1,5 milliards tone in a year, and under their warehousing more than 53 thousand ha of the landed lands is taken. Liquid and hard wastes of industrial enterprises are warehoused in the special stores of industrial wastes that about two with a half thousands are counted in Ukraine. At planning of new stores of industrial wastes and during exploitation before built the special actuality is acquired by development of measures on the guard of environment:

- object of influence;
- are the states of environment on the examined period of time;
- are prognostications of change of geological environment and environment on the whole during exploitation of stores of industrial wastes;
- methods of decline(warning) of negative influence of object on an environment;
- are affecting of object underwaters and methods of his control;
- are estimations of credible emergency situations and their consequences.

Keywords: environment, storage of industrial waste, the environment.

UDC 504.03

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FEATURES OF ENVIRONMENTAL RISK ASSESSMENT WITH USE OF UNDERGROUND WATERS OF THE KERCH PENINSULA

This article discusses the problem of assessing the environmental risks of underground water sources of the Kerch Peninsula. Studied hydrogeological and environmental characteristics of study area, identified environmental risks, given their characteristics. The authors have developed an algorithm for risk assessment, which is based on study of region natural conditions with step by step examination of all risk factors, and measures have been developed to reduce it. Using an algorithm to evaluate, reduce and control environmental risks, which, in turn, increase the level of environmental safety at natural and social spheres of the region. Particular attention is paid to analysis of theoretical foundations of the environmental risk concept as an important tool to ensure and improve environmental safety.

Keywords: ecological risk, Kerch Peninsula, underground source of water supply, environmental safety.

UDC 556.338 (470.325)

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CHANGE OF STOCK AND QUALITY OF UNDERGROUND WATERS IN THE CONDITIONS OF INTENSIVE EXPLOITATION OF AQUIFERS ON THE TERRITORY OF BELGOROD REGION

The most important problem of humanity is deteriorating state of water resources, which occurs as a result of the increasing human impact on the environment. The greatest danger in this case is the depletion and contamination of groundwaters, the main source of water supply in many regions of Russia, with small reserves of nature waters including the Belgorod region. In this region 100% of drinking water is supplied from groundwater reserves. The article is focused on human impact on different, aquifers, as well as on operational reserves, quality and groundwaters regime. This study is important due to the geological environment changes caused by the broad-based development of iron ore deposits in the KMA and intensive water sampling for household needs. The article considers the possibility of rational use of water resources with the application of methods of artificial recharge reserves of water main aquifers, the monitoring of groundwater and water - regulating complex activities of management.

Keywords: groundwater, aquifers, groundwater regime, operational resources, *technogenic* impact, chemical composition, the quality of groundwater.

UDC 550.4:661.8.36

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PESTICIDES IN GROUNDWATERS AND SOILS DONBAS

Investigated by gas chromatography environmental objects Donetsk region on the persistent organochlorine pesticides DDT and its metabolites, HCH and its isomers; organophosphorus pesticides: malathion, phosalone; fluorinated pesticides treflan and other test results shown. Defined by the presence in water of drinking water intakes and soils in the area of sanitary protection of water intakes from 1 to 6 pesticides. In mineral waters and mud resort Slavyansk determined from 9 to 13 pesticides. Indicated the influence of pesticides in groundwater on the human body. The results indicate an unfavorable ecological situation of the geological environment of the Donetsk region.

Keywords: pesticides, soil and ground waters, groundwater contamination and groundwaters.

UDC 556.388.2

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ASSESSMENT OF ANTHROPOGENIC IMPACT ON THE GEOLOGICAL ENVIRONMENT AND FEATURES OF THE ACCUMULATION OF POLLUTANTS IN THE ZONE OF THE ZMYIV THERMAL POWER-STATION (KHARKIV REGION)

The paper analyzes the impact on the environment of the largest polluter of the Kharkiv region - Zmievskey TPS. The estimation of the chemical composition of ash waste, considered the maximum concentration of air emissions. Analyzed the degree of protection and the possibility of contamination from the surface of the first Paleogene-Quaternary aquifer. Investigated the quality of groundwater sources of water in the zone of thermal and Zmievskey main micro composed of soil thawed, groundwater and water Zmievskey TPS ash dumps. During the analysis, the main sources of pollution from the first surface of the Paleogene-Quaternary aquifer are: admission to the aquifer ingredients due to the accumulation of industrial emissions of atmospheric nature that are deposited on surface soils, filtration of polluted water through poorly shielded ash dump bed, upsetting the natural water cycle in filling the cooling pond (Lake Lyman), the origins of vodonosnykh communications station and adjoining villages.

Keywords: pollution, geological environment, Zmiivska thermal power-station, the environment, anthropogenic impact, drinking groundwater quality composition, emissions, Kharkiv region.

UDC 550.4:661.8.36

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HYDROGEOCHEMICAL CHARACTERISTICS OF FLUORIDE IN THE ZONE OF HYPERGENESIS DONBASS AND SOME ASPECTS OF ITS IMPACT ON THE HUMAN BODY

Considered hydrogeochemical characteristics of fluorine in the zone gipergenezy Donbass and some aspects of its effect on the human body. Defined by natural and anthropogenic sources of his income to the hydrosphere. Showing the concentration of fluoride in groundwater of different aquifers. We characterize the properties of the element in the groundwater of different chemical composition. To describe results of experiments explorations of author to research effect dioxide carbon on migration fluorine in water. For example was presented biologic effect of active ions of element on tissue of marrow. Emphasize that activity influence by fluoride on biological systems to be more considerable with presens of boron, aluminium, iron, iode and another chemical elements. The influence fluoride on the human body is result that geochemical activity in underground waters. This fact is determination need hydrogeochemical properties of element on medical- geological aspect.

Keywords: fluorine, groundwater geochemistry, migration, the human body, non-communicable diseases.

UDC 551.14:556.3

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THE GLOBAL FRACTURING OF YUZOV BASIN AND ITS HYDROGEOLOGICAL SIGNIFICANCE

The structure and nature of the global fracturing of Yuzov basin are examined. The detected cracks form straight expressed in the relief line from 5 to 55 kilometers in length. The crack are grouped in the meridian, sublatitudinal and two diagonal clusters. The differences of the known diagram of the Earth global fracture direction and the distribution diagram of the crack directions for the joint area of the Dniepr-Donetsk Basin and the Donets Ridge are shown. It is shown that the high production rates of natural springs in this area are associated with the global fracturing. The vertical orientation of fractures and their increased water conductivity give reason to assume the technological liquids penetration in the fresh water horizons during the production of hydraulic fracturing used in the production of hydrocarbons.

Keywords: global fracturing, spring, hydraulic fracturing, Yuzov basin.